

What is claimed is:

1. An optical frequency converter, comprising:  
means for modulating light of predetermined frequency with a modulation signal to obtain a group of sidebands thereof;  
5 means for selecting sidebands from among the group of sidebands;  
and  
means for changing frequency of the modulation signal and selecting a predetermined sideband.
- 10 2. An optical frequency converter, comprising:  
means for modulating light of predetermined frequency with a modulation signal to obtain an n-th order group of sidebands thereof where n is a predetermined integer of 1 or more;  
means for modulating the n-th order group of sidebands to obtain  
15 an n+1-th order group of sidebands;  
means for selecting predetermined sidebands from among a group of numerous sidebands; and  
means for changing frequency of the modulation signal and changing a predetermined sideband.
- 20 3. An optical frequency converter according to claim 1 that includes reflecting means for folding an optical path in the optical frequency converter.
- 25 4. An optical frequency converter according to claim 2 that includes reflecting means for folding an optical path in the optical frequency converter.
- 30 5. An optical frequency converter according to claim 1 that includes one or more modulation means to at least one of which modulation means are input a group of different-order sidebands.

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6. An optical frequency converter according to claim 2 that includes one or more modulation means to at least one of which modulation means are input a group of different-order sidebands.

5        7. An optical frequency converter according to claim 3 that includes one or more modulation means to at least one of which modulation means are input a group of different-order sidebands.

10       8. An optical frequency converter according to claim 4 that includes one or more modulation means to at least one of which modulation means are input a group of different-order sidebands.

15       9. An optical frequency converter according to claim 3 that includes first reflecting means that transmits light of the predetermined frequency prior to modulation, and second reflecting means having a plurality of transmission bands.

20       10. An optical frequency converter according to claim 4 that includes first reflecting means that transmits light of the predetermined frequency prior to modulation, and second reflecting means having a plurality of transmission bands.

25       11. An optical frequency converter according to claim 1 that includes first reflecting means comprised of a laser light source and a first narrow-bandpass filter, and second reflecting means comprised of an optical modulator and a second narrow-bandpass filter.

30       12. An optical frequency converter according to claim 2 that includes first reflecting means comprised of a laser light source and a first narrow-bandpass filter, and second reflecting means comprised of an optical modulator and a second narrow bandpass filter.

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13. An optical frequency converter according to claim 3 that includes first reflecting means comprised of a laser light source and a first narrow-bandpass filter, and second reflecting means comprised of an optical modulator and a second narrow bandpass filter.

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14. An optical frequency converter according to claim 4 that includes first reflecting means comprised of a laser light source and a first narrow-bandpass filter, and second reflecting means comprised of an optical modulator and a second narrow bandpass filter.

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15. An optical frequency converter according to claim 5 that includes first reflecting means comprised of a laser light source and a first narrow-bandpass filter, and second reflecting means comprised of an optical modulator and a second narrow bandpass filter.

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16. An optical frequency converter according to claim 6 that includes first reflecting means comprised of a laser light source and a first narrow-bandpass filter, and second reflecting means comprised of an optical modulator and a second narrow bandpass filter.

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17. An optical frequency converter according to claim 7 that includes first reflecting means comprised of a laser light source and a first narrow-bandpass filter, and second reflecting means comprised of an optical modulator and a second narrow bandpass filter.

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18. An optical frequency converter according to claim 8 that includes first reflecting means comprised of a laser light source and a first narrow-bandpass filter, and second reflecting means comprised of an optical modulator and a second narrow bandpass filter.

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19. An optical frequency converter according to claim 9 that includes first reflecting means comprised of a laser light source and a first narrow-bandpass filter, and second reflecting means comprised of an optical modulator and a second narrow bandpass filter.

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20. An optical frequency converter according to claim 10 that includes first reflecting means comprised of a laser light source and a first narrow-bandpass filter, and second reflecting means comprised of an optical modulator and a second narrow bandpass filter.

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21. An optical frequency converter according to claim 1 that further comprises means for changing a length of an optical path of the optical frequency converter.

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22. An optical frequency converter according to claim 2 that further comprises means for changing a length of an optical path of the optical frequency converter.

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23. An optical frequency converter according to claim 3 that further comprises means for changing a length of an optical path of the optical frequency converter.

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24. An optical frequency converter according to claim 4 that further comprises means for changing a length of an optical path of the optical frequency converter.

25. An optical frequency converter according to claim 5 that further comprises means for changing a length of an optical path of the optical frequency converter.

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26. An optical frequency converter according to claim 6 that further comprises means for changing a length of an optical path of the optical frequency converter.

5 27. An optical frequency converter according to claim 7 that further comprises means for changing a length of an optical path of the optical frequency converter.

20 28. An optical frequency converter according to claim 8 that further comprises means for changing a length of an optical path of the optical frequency converter.

25 29. An optical frequency converter according to claim 9 that further comprises means for changing a length of an optical path of the optical frequency converter.

30 30. An optical frequency converter according to claim 10 that further comprises means for changing a length of an optical path of the optical frequency converter.

35 31. An optical frequency converter according to claim 11 that further comprises means for changing a length of an optical path of the optical frequency converter.

40 32. An optical frequency converter according to claim 12 that further comprises means for changing a length of an optical path of the optical frequency converter.

45 33. An optical frequency converter according to claim 13 that further comprises means for changing a length of an optical path of the optical frequency converter.

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34. An optical frequency converter according to claim 14 that further comprises means for changing a length of an optical path of the optical frequency converter.

5 35. An optical frequency converter according to claim 15 that further comprises means for changing a length of an optical path of the optical frequency converter.

10 36. An optical frequency converter according to claim 16 that further comprises means for changing a length of an optical path of the optical frequency converter.

15 37. An optical frequency converter according to claim 17 that further comprises means for changing a length of an optical path of the optical frequency converter.

20 38. An optical frequency converter according to claim 18 that further comprises means for changing a length of an optical path of the optical frequency converter.

39. An optical frequency converter according to claim 19 that further comprises means for changing a length of an optical path of the optical frequency converter.

25 40. An optical frequency converter according to claim 20 that further comprises means for changing a length of an optical path of the optical frequency converter.

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